

What's Killing Unborn Foals in Kentucky?

Some mares grazing the rolling, idyllic hills of Kentucky may produce foals destined to become prize racehorses. Or, in their last month of pregnancy, the mares may be stricken with a disease called nocardioform placentitis, causing weak or stillborn foals.

The bacterium that causes the disease, *Crossiella equi*, was recently named by ARS microbiologist David P. Labeda, at the National Center for Agricultural Utilization Research, Peoria, Illinois. Labeda has been collaborating with veterinary researchers at the University of Kentucky's Livestock Disease Diagnostic Center, Lexington, to learn more about the nature of *C. equi* and find some practical horse-husbandry solutions to the problem.

"We're puzzled," says Labeda, "as to how *C. equi* finds its way to its infection site."

Since 1986, nocardioform placentitis has dashed many dreams for prize-winning horses in Kentucky. The disease causes lesions in the placenta—the nourishment highway between the mare's uterus and the fetus—which prevent the fetus from growing strong. Annually, the number of U.S. cases of nocardioform placentitis, all occurring in Kentucky, fluctuated between 2 and 32. But during the wet-weather years of 1998 and 1999, it shot up to 94 and 144 cases, respectively. Some 12,000 foals are born in the region each year, and an average of 110 cases of placentitis occur from all causes annually.

In 1999, University of Kentucky researchers found that DNA sequences in *C. equi* corresponded to several DNA sequences that Labeda had determined for a bacterium he named *C. cryophila* during a study of bacteria in the family Actinosynemataceae.

Though *C. cryophila* and *C. equi* are closely related, only *C. equi* has been implicated in an animal disease. It thrives in warm temperatures and on many carbon-rich materials.

Yet, in animal experiments at the University of Kentucky, the scientists have been unable to use *C. equi* to induce nocardioform placentitis in a horse. The researchers are trying to determine the life stage in which the bacterium is infective and whether it becomes motile enough to reach the horn of a mare's uterus.

Fortunately, *C. equi* succumbs to most antibiotics, and the disease has so far stricken only a small percentage of horses. For these reasons, says Labeda, it would be inappropriate to indiscriminately use antibiotics to prevent the disease in all horses that might become infected.—By **Ben Hardin**, formerly with ARS.

This research is part of Plant, Microbial, and Insect Genetic Resources, Genomics, and Genetic Improvement, an ARS National Program (#301) described on the World Wide Web at <http://www.nps.ars.usda.gov>.

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